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Paradoxical reaction under dupilumab triggered by occasional ketoprofen intake

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Abstract

Dupilumab, a monoclonal antibody targeting the IL-4/13 signaling pathway, effectively treats moderate-to-severe atopic dermatitis (AD). Common side effects include injection site reactions, conjunctivitis, and respiratory infections. We report the case of a 28-year-old woman with severe AD involving the periocular and chin regions, genital areas, arms, and legs (Eczema Area and Severity Index [EASI]: 24, itch Visual Analog Scale [VAS]: 8) who showed significant improvement after initiating dupilumab therapy. However, following ketoprofen intake for headache relief, she developed a lupus-like erythematous maculopapular rash on the periocular and malar regions. Immunological tests (ANA, ENA) and photopatch testing ruled out autoimmune or allergic causes. Dupilumab was stopped, and treatment with oral prednisone and cetirizine led to complete resolution. This case highlights a potential drug interaction between dupilumab and ketoprofen, emphasizing the need for awareness of paradoxical facial erythema reactions in patients undergoing dupilumab therapy.

Introduction

Dupilumab is a monoclonal antibody that acts on the IL-4/13 signaling pathway, inhibiting downstream activation of the JAK-STAT pathway. It has been proven effective in treating moderate-to-severe atopic dermatitis (AD), with the most commonly described side effects being reactions at injection sites, conjunctivitis, nasopharyngitis, and upper respiratory tract infections.[1]

Case Report

We present the case of a 28-year-old woman with lichenified and fissured AD in the periocular and chin area, genital area, arms, and legs that was highly pruritic and impactful on her quality of life (itch Visual Analog Scale [VAS]: 8; Eczema Area and Severity Index [EASI]: 24) (Figure 1a). She initiated dupilumab therapy with the standard initial dosage of 600 mg, followed by 300 mg every other week. During the first month, after three administrations, a significant improvement was observed, with reduced itching and initial regression of lesions on the face and hands, along with gradual attenuation of genital symptoms (itch VAS: 6; EASI: 6).

Subsequently, during a follow-up visit, the patient presented with an erythematous, desquamating maculopapular lupus-like rash in the periocular and malar regions, which occurred a few hours after taking ketoprofen for a headache (Figure 1b). Immunological tests (ANA, ENA) were performed to rule out lupus erythematosus and dermatomyositis, yielding negative results. Additionally, to rule out possible allergic photodermatitis, the patient underwent a standard patch test series with 40 allergens and a photopatch test. Two identical series were applied to the dorsal skin, and after patch removal at 48 hours, only one of the two was irradiated with a UVA dose of 3 J. Both tests yielded negative

results at the 72-hour reading, excluding reactivity to ketoprofen. Dupilimab was temporarily stopped, and the patient was treated with 25 mg of oral prednisone and oral cetirizine for one week, showing complete resolution of the rash (Figure 1c).

Conclusions

Paradoxical reactions to dupilumab characterized by localized erythema on the face or neck have been described in the literature, typically within 6 months of starting dupilumab therapy.[2,3] Given the timing of onset, clinical presentation, and negativity in sensitization to NSAIDs, we want to highlight the possibility of drug interaction between dupilumab and ketoprofen that may have triggered the paradoxical reaction in our patient.

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Figure 1. a) Atopic dermatitis presenting with eczematic pruritic lesions in the periocular and perioral region; **b)** erythematous maculopapular lupus-like rash in the periorbital and malar region; **c)** complete resolution of the rash a week later after oral steroids and antihistamines.